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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/055,474	01/23/2002	James L. Tracy	CM02045K	6374

7590 08/22/2005  
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EXAMINER

PIZIALI, JEFFREY J

ART UNIT	PAPER NUMBER
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2673

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/055,474

**Applicant(s)**

TRACY ET AL.

**Examiner**

Jeff Piziali

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Warnings*

1. Applicant is advised that should claim 7 be found allowable, claim 23 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Independent claims 8, 16, and 17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The amendment submitted 6 June 2005 has newly added the subject matter of "a flexible display means... comprising: a driver layer having a conductor element... a conductive trace... a transparent conductor layer; and an electrically active ink layer."

However, the present specification merely teaches, "The assembly further includes a laminate for providing a display means comprised of a driver layer 108, an electrically active ink

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layer 110, and a transparent conductor layer 112. The driver layer 108 is itself a laminate comprised of a flexible insulator layer made of, for example, Mylar or polyamide. On the flexible insulator layer there is disposed conductor elements 114, such as copper or conductive ink, for example" (see Page 4, Lines 13-20).

In other words, the specification discloses a display means comprising a flexible driver layer; but does not ever disclose the explicit subject matter of a flexible display means comprising a driver layer, a conductive trace, a transparent conductor layer, and an electrically active ink layer. To teach such a flexible display means, all of the driver layer, the conductive trace, the transparent conductor layer, and the electrically active ink layer would have to be disclosed by the specification as constituting flexible materials. In contrast, the current specification is silent on the matter of conductive trace, transparent conductor layer, and electrically active ink layer flexibility.

4. Dependent claims 9-15 and 18-22 are rejected under 35 U.S.C. 112, first paragraph, as being dependent respectively upon rejected base claims 8 and 17.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Independent claims 8, 16, and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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7. The term "flexible display means" in claims 8, 16, and 17 is a relative term which renders the claim indefinite. The term "flexible" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The applicants remark in the amendment submitted 6 June 2005 that, "Glass is not considered to be a flexible substrate" (see Page 11 of the Amendment). However, glass (like all solid-body materials) does indeed exhibit an inherent degree of flexibility. Other the other hand, the applicants do seem to consider Mylar and polyamide to qualify as flexible materials (see Page 4, Lines 16-18 of the Specification). However, a person having ordinary skill in the art at the time of invention would have no way of adequately determining how flexible a display means must be before it would qualify in the applicants' eyes as being *flexible*.

8. Dependent claims 9-15 and 18-22 are rejected under 35 U.S.C. 112, second paragraph, as being dependent respectively upon rejected base claims 8 and 17.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-4, 8-12, and 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Di Santo et al. (US 4,870,677).

Regarding claim 1, Di Santo discloses a button mechanism, comprising: a switch means [Fig. 1; 12] for operating a button circuit in response to actuation of the button mechanism; display means [Fig. 1; 11] disposed in correspondence with the switch means (see Column 2, Line 51 - Column 4, Line 41) and comprising: a driver layer having a conductor element (i.e. intersections of X and Y conductors) configured in the form of a symbol (see Figs. 2 & 3) to be displayed on the button mechanism, and a conductive trace [Fig. 4; X and Y conductors] connected to the conductor element for providing voltage to the conductor element; a transparent conductor layer; and an electrically active ink layer disposed between the transparent conductor layer and the driver layer (see Column 1, Line 38-67).

Regarding claim 2, Di Santo discloses the conductor element comprises: a first set of conductor elements corresponding to a first symbol [Fig. 2; "ABC 2"], and connected to a first set of conductive traces; and a second set of conductor elements corresponding to a second symbol [Fig. 2; "DEF 3"] and connected to a second set of conductive traces; wherein the first and second symbols are coincidentally located (see Column 3, Line 59 - Column 4, Line 41).

Regarding claim 3, Di Santo discloses a third set of conductor elements which form segments [horizontal X line patterns, for instance] common to both the first and second symbols, and are connected to a third set of conductive traces (see Fig. 5; Column 4, Line 42 - Column 5, Line 41).

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Regarding claim 4, Di Santo discloses the first and second symbols are not commonly oriented (see Figs. 2 & 3).

Regarding claim 8, this claim is rejected by the same reasoning applied in the above rejection of claim 1; moreover, Di Santo discloses an adaptable keypad (see Figs. 2 & 3), comprising: a plurality of keys (see Column 3, Line 59 - Column 4, Line 41) and a flexible display means [wherein the display substrate is made of glass -- see DiSanto et al (US 4,655,897); Fig. 1, 17; Column 3, Lines 34-68].

Regarding claim 9, this claim is rejected by the same reasoning applied in the above rejection of claim 2.

Regarding claim 10, this claim is rejected by the same reasoning applied in the above rejection of claim 3.

Regarding claim 11, this claim is rejected by the same reasoning applied in the above rejection of claim 4.

Regarding claim 12, Di Santo discloses the first set of conductor elements for each of the plurality of keys forms a first symbol set [Fig. 2], the second set of conductor elements for each of the plurality of keys forms a second symbol set [Figs. 3 & 5], the first and second symbol sets are exclusively energized depending on a mode [Figs. 2 & 3; 100] of operating the keypad,

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wherein the keypad is usable in at least two modes, each mode requiring using a different orientation (see Figs. 2 & 3; Column 2, Line 51 - Column 4, Line 41).

Regarding claim 17, this claim is rejected by the same reasoning applied in the above rejection of claims 1 and 8; moreover, Di Santo discloses the flexible display means allows depression of the switch means to complete the button circuit (see Column 2, Line 51 - Column 4, Line 41 and Column 8, Lines 46-68).

Regarding claim 18, this claim is rejected by the same reasoning applied in the above rejection of claim 2; moreover, Di Santo discloses the first and second set of conductor elements and first and second set of conductive traces are all located on a single layer [wherein the display substrate is made of glass -- see DiSanto et al (US 4,655,897); Fig. 1, 17; Column 3, Lines 34-68].

Regarding claim 19, this claim is rejected by the same reasoning applied in the above rejection of claim 3.

Regarding claim 20, this claim is rejected by the same reasoning applied in the above rejection of claim 4.



***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 5-7, 13-16, and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Di Santo et al. (US 4,870,677) in view of Dreher (US 4,551,717).

Regarding claim 5, Di Santo does not explicitly disclose the switch means comprises a popple switch. However, Dreher does disclose a switch means [Fig. 2; 20] comprising a popple switch [Fig. 2; 11 & 12] (see Column 2, Lines 26-65). Di Santo and Dreher are analogous art because they are from the shared inventive field of buttons having variable displays. Therefore, it would have been obvious to one skilled in the art at the time of invention to use Di Santo's electrophoretic display as Dreher's display [Fig. 1; 40], so as to provide the programmable key with a thin display device capable of high resolution at low power.

Regarding claim 6, Dreher discloses a transparent actuating member [Fig. 2; 12] disposed in correspondence with the popple switch, such that the display means [Fig. 2; 15] is between the popple switch [Fig. 2; 20] and the transparent actuating member (see Column 2, Lines 26-65).

Regarding claim 7, Dreher discloses the transparent actuating member has a convex outer surface (see Fig. 2; 12).

Regarding claim 13, this claim is rejected by the same reasoning applied in the above rejection of claim 5.

Regarding claim 14, this claim is rejected by the same reasoning applied in the above rejection of claim 6; moreover, Dreher discloses each of the plurality of transparent actuating members is held in place by a housing [Fig. 2; 10] (see Column 2, Lines 26-65).

Regarding claim 15, this claim is rejected by the same reasoning applied in the above rejection of claim 7.

Regarding claim 16, this claim is rejected by the same reasoning applied in the above rejection of claims 1, 2, 6, 8, and 14; moreover, Di Santo discloses a portable electronic device [Fig. 1; 10] having an adaptable keypad [Fig. 1; 11 & 12] (see Column 2, Line 51 - Column 4, Line 41); a switch means [Fig. 1; 12] for operating a button circuit corresponding to the switch means in response to the button mechanism being depressed (see Column 8, Lines 46-68).

Regarding claim 21, this claim is rejected by the same reasoning applied in the above rejection of claim 5.

Regarding claim 22, this claim is rejected by the same reasoning applied in the above rejection of claim 6.

Regarding claim 23, this claim is rejected by the same reasoning applied in the above rejection of claim 7.

***Response to Arguments***

13. Applicants' arguments filed 6 June 2005 have been fully considered but they are not persuasive. The applicants contend the cited prior art of Di Santo et al. [US 4,870,677 -- and by incorporation by reference (see Column 2, Lines 3-6) -- US 4,655,897] fails to teach conductors in the "shape of pixels" (see Pages 10-11 of the Amendment). The applicants argue that because Di Santo (US 4,655,897) teaches a matrix of perpendicular cathode lines [Fig. 1; 11] and grid lines [Fig. 1; 15], wherein each line intersection constitutes an electrophoretic [Fig. 1; 31] pixel; the resulting pixel cannot said to be in the shape of the conductors/lines. However, the examiner respectfully disagrees. Firstly, it must be noted that present claim language nowhere includes the explicit subject matter of "pixels" or "shape of pixels." Claim 1 merely recites, "a conductor element configured in the form of a symbol to be displayed." Moreover, Di Santo (US 4,655,897) explicitly teaches the use of apertures/spaces [Fig. 2; 50] forming "a series of wells or depressions between the grid [Fig. 2; 45] and cathode [Fig. 2; 40 & 41] structure into which depressions the electrophoretic dispersion material 31 is accommodated." (see Column 5, Lines 20-23). In such a manner, one having ordinary skill in the art at the time of invention would consider at least each single pixel geometric point/dot/rectangle/square formed by Di Santo's apertures/spaces as constituting a separate and distinct "conductor element configured in the form of a symbol to be displayed," as is presently claimed in the instant application.

The applicants additionally argue that Di Santo's glass substrate cannot be considered a flexible substrate (see Page 11 of the Amendment). However, the examiner must respectfully disagree. As addressed previously in the 35 U.S.C. 112, second paragraph rejection above, glass (like all solid-body materials) does indeed exhibit an inherent degree of flexibility. The applicants seem to be suggesting that their display is more flexible than Di Santo's display. However, at present no explicit subject matter has been placed in the claim language distinguishing the requisite degree of flexibility provided by the instant invention. As such, one having ordinary skill in the art at the time of invention would indeed consider glass to be flexible (compared to a ceramic material, for instance).

The applicants also contend Di Santo's characters/symbols always all have the same orientation (see Page 12 of the Amendment). The examiner again respectfully disagrees. Di Santo clearly illustrates first and second symbols not being commonly oriented (see Figs. 2 & 3). Which is to say, Di Santo's characters/symbols are all each distinctly and separately oriented in different locations. It is further noted that although the applicants make arguments pertaining to landscape and portrait modes of display, no such subject matter is present in the current claim language.

The applicants further suggest that using Dreher's (US 4,551,717) popple/sprung switch with Di Santo's display would break the display under the force of depression (see Page 13 of the Amendment). However, the examiner respectfully disagrees. Dreher's own display [Fig. 2; 15] is taught as possibly being a liquid crystal display (see Column 1, Lines 45-52). Moreover, the instant application teaches "LCD displays are not flexible" (see Page 2, Lines 25-26 of the Specification). Therefore, one having ordinary skill in the art at the time of invention would

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have no reason to believe that Di Santo's flexible glass-type display would break when combined with Dreher's switch means.

Lastly, the applicants contend Dreher does not teach a transparent key cap (see Page 13 of the Amendment). However, the examiner again respectfully disagrees. Dreher states, "The top of the key is made of a clear plastic, glass or other transparent substance and is molded in the shape of a lens" (see Column 2, Lines 3-5). By such reasoning, rejection of the claims is deemed necessary, proper, and thereby maintained at this time.

### *Conclusion*

14. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



J.P.

10 August 2005



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